

ABSTRACT OF THE DISCLOSURE

An organ perfusion apparatus and method monitor, sustain and/or restore viability of organs and preserve organs for storage and/or transport. Other apparatus include an organ transporter, an organ cassette and an organ diagnostic device. The
5 method includes perfusing the organ at hypothermic and/or normothermic temperatures, preferably after hypothermic organ flushing for organ transport and/or storage. The method can be practiced with prior or subsequent static or perfusion hypothermic exposure of the organ. Organ viability is restored by restoring high energy nucleotide (e.g., ATP) levels by perfusing the organ with a medical fluid, such
10 as an oxygenated cross-linked hemoglobin-based bicarbonate medical fluid, at normothermic temperatures. During the period in which the organ is preserved and/or maintained, various drug research and development may be performed on and/or with the organ. The organ may be perfused with a fluid containing a substance such as a test substance to obtain data regarding the organ, the substance and an interaction of
15 the substance and the organ. The data may then be used to ultimately provide information regarding the drugs efficacy in support of regulatory filings for new drugs.